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The Newsletter of the Wyoming Native Plant Society

October 1998
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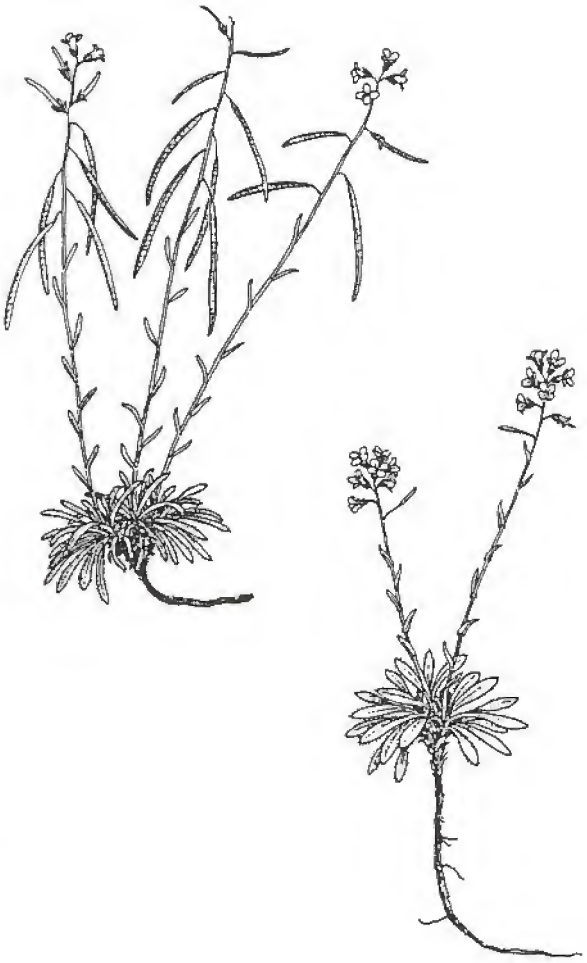


A trio of mustards, described by the late Reed Rollins (see page 5). Top: Small rock cress (*Arabis pusilla*) is restricted to pegmatite granite outcrops near South Pass, Wyoming, and is a candidate for listing under the Endangered Species Act. Center: Daggett rock cress (*Arabis pendulina* var. *russeola*) occurs on limey soils on dry hill slopes, rock outcrops, and sagebrush communities in southern and central Wyoming, northern Utah, and western Colorado. Bottom: *Arabis demissa* var. *languida* (also called Daggett rock cress) occurs in foothills and basin areas of Wyoming, Colorado, Utah, and Nevada. All three of these species are closely related and distinguishable only by subtle differences in leaf pubescence and fruit position. Illustrations by Isobel Nichols (top) and Kaye Thorne (middle and bottom).

WNPS NEWS

1998 Annual Meeting: The WNPS annual meeting and field trip were held on Saturday, August 1, 1998 in the Green River Lakes area of the Wind River Range. Twenty members, guests, and 2 small dogs attended the meeting and were treated to a fine day of botanizing and botanically-oriented socializing (see full report on page 3). Members travelled from as far away as New York and Washington DC to attend this year's event, clearly a new long-distance record.

A brief business meeting was held in the morning at the Bridger-Teton Forest boundary near the banks of the Green River. Charmaine Refsdal Delmatier displayed the society's new membership brochure and announced a major donation to the Society's scholarship fund from the Green River Chapter of the Garden Club. Charmaine also discussed her ideas for a color poster to be produced by the Society for fund-raising and to raise the awareness of native plants. A committee was drafted to explore the poster idea. (Anyone else interested in this committee should contact Char for more information 875-6437). In other business, progress on the Society's home page was discussed, as was the possibility of developing a membership "address book" to facilitate contact between members.

With all the unpredictability of an election in the former Eastern Bloc, the results of the 1998 election of Society officers was announced by the Secretary. Officers for 1998/99 are: President - Charmaine Refsdal Delmatier, Vice President – Jim Ozenberger, Secretary-Treasurer – Walt Fertig, and 2-year Board Member – Nina Haas. Jennifer Whipple continues as the second Board member. Thanks were extended to our out-going Board members Dick Scott and Katy Duffy for their service the past year.

Members in attendance voted on a list of potential sites for next years annual meeting and field trips. In a close and spirited vote, two sites were selected. The desert country of southwest Wyoming was chosen for the annual meeting/field trip (tentatively slated for early June) and the alpine country of the Beartooth Mountains was chosen for a second field trip in early to mid August. Look for more details on these trips in a future issue of the newsletter.

1999 Student Scholarship: Once again, the Society's student scholarship is available to qualified junior college or university undergraduates or graduate students studying the native flora and fungi of Wyoming. One to three scholarships will be awarded this spring in the amounts of $300-500. Interested students should contact the Secretary of the Society for an application form. Applications are due by 26 Feb. 1999.

New Members: Please welcome the following new members of WNPS: Margaret Brenneman (Ranchester), Mike Dauernheim (Cody), Frank Goodyear (Bryn Mawr, PA), Green River Garden Club (Green River), Deb Tirmenstein (Missoula, MT), Toni Vigil (Laramie), and Mary Lou Zimmerman (Douglas)

We're looking for new members: Do you know someone who would be interested in joining WNPS? Send their name or encourage them to contact the Society for a complimentary newsletter.

Attention Readers: We are always looking for articles and illustrations for the newsletter. Items for the December issue are needed by 10 December 1998.

Treasurer's Report: Balance as of 10 October 1998: General Fund $557.37; 1998-99 Student Scholarship Fund $1005.00; Total funds: 1562.37 WF

Wyoming Native Plant Society
1604 Grand Ave., Laramie, WY 82070

President: Charmaine Refsdal Delmatier (Green River)
Vice President: Jim Ozenberger (Jackson)
Secretary-Treasurer: Walt Fertig (Laramie)
Board Members: Nina Haas (Cheyenne)
Jennifer Whipple (Mammoth)
Newsletter Editor: Walt Fertig (307) 745-5026 (wk)/e-mail: clyde@uwyo.edu .

Teton Chapter: PO Box 82, Wilson, WY 83014 (Joan Lucas, Treasurer). For general information on events, call Katy Duffy (543-2959).

Contributors to this issue: John "Barney" Baxter, J.F. Davidson, Walter Fertig (WF), Robin Jones, Isobel Nichols, and Kaye Thorne.

Plant Oriented Websites: For computer savvy members, the following websites are available for botanical browsing:

Wyoming Natural Diversity Database: The Wyoming Natural Diversity Database was established by The Nature Conservancy in the late 1970s to provide information on the rare flora and fauna of Wyoming. This program became affiliated with the University of Wyoming in July 1998. The database has a new and improved web page with complete lists of animal and plant species of special concern for Wyoming. These lists contain information on distribution by county and management area, natural heritage ranks, and protected status. The web site can be reached at http://www.uwyo.edu/wyndd/.

National Wildflower Research Center: Established by Lady Bird Johnson in 1982, the center promotes research and education on the economic and aesthetic values of wildflowers. Their web site is www.wildflower.org.

Native Plant Conservation Initiative: The initiative is a consortium of national organizations interested in the conservation of native plants. Their new site (still under construction) is http://www.aqd.nps.gov/natnet/npci.

WNPS homepage: Our page is still under construction, but hopefully will be ready by January 1999!

Summer Field Trip Reports

Annual Meeting/Field Trip (August 1-2): The annual field trip to the Wind River Range kicked off with a visit to Kendall Warm Springs on the banks of the Green River. The warm springs are best known as the home of the Endangered Kendall Warm Springs dace, a tiny, minnow-like fish. Several uncommon plants also occur in the area, including Payson's bladderpod (*Lesquerella paysonii*), a low-growing mustard with flattened pods and gray foliage found on travertine cliffs and bare soil patches. Other plants found along the banks included western St. John's wort (*Hypericum formosum* var. *scouleri*), an orangish-yellow flowered relative of the medicinal St. Johns' wort, purple flowered Rocky Mountain fringed gentian (*Gentianopsis detonsa* var. *elegans*), and the lavender-rayed Eaton's aster (*Aster bracteolatus*). A matted, purplish-green plant with irregularly-lobed leaves perplexed the group until the discovery of a few flowers and fruits revealed it as watercress (*Rorippa nasturtium-aquaticum*).

The Kendall Warm Springs area also contains an interesting "cold water" wetland associated with non-thermal, calcareous springs. This wetland has a number of uncommon boreal disjunct species restricted to saturated peats. We observed a number of these species, including the diminuitive hoary willow (*Salix candida*), dagger-fruited *Carex microglochin*, and tiny alpine meadow-rue (*Thalictrum alpinum*). The group also located a new aquatic species for the area, *Lemna trisulca*.

After lunch, we proceeded to the Green River Lakes at the upper end of the spectacular Green River valley. Looming above us were three of the most scenic peaks of the Wind River Range – Osborn Mountain, Big Sheep Mountain, and Squaretop Mountain. Our destination, however, was a fen just north of the lakes. En route we passed through a forest of lodgepole pine and subalpine fir carpeted with blooming milkvetches, fireweed, and stonecrop. Just before the Green River Bridge we encountered a low-growing rabbitbrush-like plant with larger than normal flower heads. Instead of a *Chrysothamnus*, we had stumbled upon a previously unknown population of narrowleaf goldenweed (*Haplopappus macronema* var. *linearis*), a Forest Sensitive plant! At the wetland itself we found another Sensitive plant, the Greenland primrose (*Primula egaliksensis*). It took sharp eyes to find the tiny plants amid the dense grasses and quaking hummocks at the center of the fen. Other unusual discoveries included baby boreal toads and a patch of swamp willow-herb (*Epilobium palustre* var. *palustre*), two other species considered rare in Wyoming.

The group had dinner and camped at the Green River Lakes campground at a site reserved for the Society by Jim Ozenberger. On Sunday morning the meeting ended with the remaining participants splitting into smaller groups to explore the Green River Lake trail. One hardy group braved the unseasonably cool weather and climbed 11,800 foot Osborn Mountain to search for alpine mustards and sedges.

National Elk Refuge wetlands: On July 31, 1998, over 40 nature lovers descended upon the National Elk Refuge for a tour of wetland plants lead by Walt Fertig. The group first visited the wetlands along Nowlin Creek to find flatleaf bladderpod (*Utricularia intermedia*), a carnivorous aquatic herb with specialized leaf bladders to capture tiny prey. The entire Wyoming population of this plant is restricted to the Elk Refuge. Other interesting species at the site included boreal aster (*Aster borealis*), hoary willow (*Salix candida*), and mealy primrose (*Primula incana*). Our second stop was near the Flat Creek bridge, where we searched on hands and knees for pygmy bulrush (*Scirpus rollandii*), one of the smallest plants in the Wyoming flora. This 2-4 inch tall plant consists of a yellowish green stem, tiny bract-like leaves, and a terminal rounded spike of 3-5 dark brown achenes. The entire plant looks like a vegetable matchstick! After much searching, we finally located a sizeable patch, one of only 3 known in the state.

Ferris Mountains/Beaver Rim: On June 20, WNPS members convened at the Three Forks Service Station for a weekend of Central Wyoming botanizing. Our first destination was the multi-colored slopes on the east side of Muddy Gap. This high desert site contains a number of cushion plant species adapted to the dry soils and harsh, windy climate of the area. One of the more noteworthy species we observed was the Devils Gate twinpod (*Physaria eburniflora*), a low-growing mustard with silvery balloon-like pods. This species is restricted to the Sweetwater River Plateau where it occurs on mudstones, conglomerates, sandstones, limestones, and granitic rocks. Also present were a number of other cushion plants, including *Phlox muscoides, Cryptantha caespitosa, Astragalus simplicifolius,* and *Oxytropis nana* (the latter two species being endemic to Central Wyoming).

The group then proceeded to the Ferris Mountains via the Cherry Creek Road. Bob Dorn lead the ascent of the north side of the mountain, where we encountered a rich variety of flowering forbs, such as bluebells, golden peas (*Thermopsis*), woodland-stars (*Lithophragma*), and lupines.

After spending the night in the Green Mountains, we proceeded to Cedar Rim on Sunday to locate desert yellow-head (*Yermo xanthocephalus*) and other desert oddites. Cedar Rim contains the world's only known population of desert yellowhead as well as colonies of many other state and regional endemics, including the Beaver Rim phlox (*Phlox pungens*), Cedar Rim thistle (*Cirsium aridum*), Payson's beardtongue (*Penstemon paysoniorum*), Nuttall's biscuitroot (*Lomatium nuttallii*), and Devil's Gate twinpod. Bob Dorn recounted his discovery of *Yermo* while surveying the Beaver Rim area by dirt bike in 1990. When he first saw them, the plants were in bud and initially appeared to be a new type of milkweed (*Asclepias*). Only when he returned later to collect flowering material did Bob realize his plant was a new species (and genus) of Asteraceae. (See page 4 for more on this species). WF

Editors Note: Desert yellowhead is one of three Wyoming plant species that are candidates for listing under the Endangered Species Act. A formal proposal to list this species as Endangered is being prepared this fall, with a public comment period to follow. The Bureau of Land Management is currently working with the US Fish and Wildlife Service and other stakeholders to develop a management strategy for this species and its limited habitat. To find out more about the listing proposal or the BLM's draft conservation plan, contact Jeff Carroll, BLM state botanist (307-775-6090), Connie Breckinridge, BLM Lander Resource Area (307-332-8401) or Mary Jennings, US Fish and Wildlife Service (307-772-2374). WF

Desert Yellowhead
Yermo xanthocephalus
Fact Sheet

Status: Desert yellowhead was designated a candidate for listing under the Endangered Species Act in 1996. A proposal to list it as Endangered is expected by late 1998. The entire global distribution of the species is limited to about 6 acres of habitat in the Beaver Rim area of southeastern Fremont County, Wyoming. 1998 censuses by Dick and Bev Scott of Central Wyoming College have determined the population to be approximately 11,600 flowering and vegetative individuals.

Description: Desert yellowhead is a tap-rooted, glabrous perennial herb with leafy stems to 12 inches tall. The leathery leaves are alternate, lance-shaped to oval, 1 ½-10 inches long, and often folded along the midvein. Leaf edges are smooth or toothed. Flower heads number 25-180 and are crowded at the top of the stem. Each head contains 4-6 yellow disk flowers (ray flowers are absent) surrounded by 5 yellow, keeled, involucre bracts. The fruits are slightly flattened brown achenes topped by numerous white pappus bristles. Desert yellowhead is the only known member of its genus, and is essentially unique in the entire sunflower family (Asteraceae) in having yellow involucre bracts.

Look-alikes: Rosettes superficially resemble those of broad-leaved species of plantain (*Plantago)*. Rayless *Senecios* differ in having green involucre bracts.

Flowering Period: Flowering occurs from mid-May to mid-August. Fruits are present from mid-July to early September.

Habitat: *Yermo xanthocephalus* occurs on low slopes and colluvial fans on the Miocene-age Split Rock Formation. It is restricted to poorly developed soils derived from white or tan sandstones and clays. Vegetative cover is usually under 5% and consists of widely scattered cushion plants and bunchgrasses. Associated species include Cedar Rim thistle (*Cirsium aridum)*, Hooker's sandwort (*Arenaria hookeri*), Gordon's ivesia (*Ivesia gordonii*), Indian ricegrass (*Oryzopsis hymenoides*), Round-leaved goldenpea (*Thermopsis rhombifolia*), Shortstem wildbuckwheat (*Eriogonum brevicaule*), and Squarestem phlox (*Phlox muscoides*).

Current Management: Desert yellowhead is found entirely on BLM lands managed primarily for cattle grazing, oil and gas development, and recreation (mostly hunting and off road vehicle use).

Potential Threats: This species is considered vulnerable to extinction due to its restricted habitat, moderate population size, and impacts from ground disturbing activities. Foremost among these threats is soil erosion and plant dislodgement by recreational vehicles using the network of roads in the area. Disturbance from seismic exploration and development of oil and gas wellpads and pipelines are also potential threats. Livestock trail through the area but do not regularly feed on *Yermo* and do not congregate in the area due to a lack of water and forage.

Conservation Needs: Existing BLM regulations protect the immediate habitat of *Yermo* through no-surface occupancy regulations on mineral development. The BLM is formulating a conservation strategy for the species in which the habitat will be withdrawn from mineral location, existing roads through the site will be closed, and the establishment of permanent water tanks or salt blocks for cattle will be banned. Additional monitoring of the population and the establishment of off-site seed banks and new colonies will also be conducted. There are no plans presently to designate the population as a special management area.

Below: Desert yellowhead. Illustration by Robin Jones.

Botany Briefs

Reed Rollins 1911-1998: Reed Rollins, one of the world's foremost authorities on the mustard family (Brassicaceae) died this spring at the age of 86. Rollins, a native of Lyman, Wyoming, began his botanical career at the University of Wyoming under the tutelage of Aven Nelson in the 1930s. From Wyoming, he went on to attain a Masters Degree and PhD in botany from Washington State and Harvard universities. During World War II, Rollins worked for the US Department of Agriculture on the Emergency Guayule Rubber Research Project studying alternative, domestic sources of natural rubber. In 1948 Rollins was hired as Director of the prestigious Gray Herbarium at Harvard, a post he held until retiring in 1978.

Rollins spent most of his academic career investigating the systematics of the mustard family. Among his most important works were monographs of *Arabis, Halimolobos, Lesquerella* (with Elizabeth Shaw), *Physaria, Schoenocrambe, Smelowskia* (with W.H. Drury), *Stanleya,* and *Thelypodiopsis.* Rollins described more than 200 new mustard taxa from the United States, Mexico, and central America. Many of the taxa he described are Wyoming endemics (or near-endemics), including *Arabis demissa* var. *languida, A. pendulina* var. *russeola, A. pusilla, A. williamsii, Descurainia torulosa, Draba pectinipila, D. porsildii* var. *brevicula, Lepidium paysonii, Lesquerella arenosa* var. *argillosa, L. carinata, L. fremontii, L. paysonii, Physaria condensata, P. eburniflora,* and *P. saximontana.* In addition to naming these species, Rollins had numerous species and a mustard genus (*Rollinsia*) named in his honor.

Rollins' major, lasting contribution may be his 1993 publication "The Cruciferae of Continental North America, systematics of the mustard family from the Arctic to Panama". This 976 page tome is a synthesis of the taxonomy of the entire Brassicaceae in North America and should serve as the standard reference on his favorite family for many years to come. WF

USDA Deems Salsa a Vegetable: Seventeen years after the Reagan administration proposed that ketchup was a vegetable, the US Department of Agriculture recently declared ketchup's culinary cousin, salsa, to be a vegetable. Salsa may now be used by school districts in developing nutritionally balanced lunch programs (source: Casper Star-Tribune, 1 July 1998). WF

IUCN Study Documents International Rare Plant Crisis: At least one plant species in eight on Earth is in danger of extinction, according to a new study released by the World Conservation Union (IUCN) this past April. The IUCN's "red book" for plants indicates that 34,000 vascular plant species worldwide (out of 270,000 documented species) are at risk, due largely to habitat destruction and competition from exotic species. According to the report this number may be "just the tip of the iceberg" because little data are available for many countries experiencing rapid habitat loss (such as Brazil and nations of the Caribbean and central Africa).

To qualify for the threatened list, a species had to be known from fewer than 100 locations and have fewer than 10,000 individuals. Based on these criteria, approximately 29% of the flora of the United States made the list, figures that are comparable to the 25% estimate of numbers of US species in danger cited in a 1987 study by the Center for Plant Conservation.

The "1997 IUCN Red List of Threatened Plants" is the product of more than 20 years of study and was produced in collaboration with the Smithsonian Institution, World Wildlife Fund, Nature Conservancy, Royal Botanic Gardens of Kew and Edinburgh, and 10 other international government and private research groups. The complete list is available on the internet at the World Conservation Monitoring Centre's home page (www.wcmc.org.uk). WF

Upcoming Colorado Native Plant Society Workshops: Our sister society "south of the border" has a number of workshops planned for the fall and winter to assist botanists in improving their botanical skills. These workshops are taught by local experts who require only a love of plants and a desire to learn as prerequisites. To register for these workshops, contact Bill Jennings of the Colorado Native Plant Society at 303-665-6903 or PO Box 952, Louisville, CO, 80027. Workshop fees are $12 for CNPS members and $24 for non-members ($12 of which goes towards a membership).

Workshops scheduled for Fall 1998-Winter 1999 include the following:

"The Helleboraceae in Colorado". Leaders: Bill Jennings & Bob Nold. Location: Foothills Nature Center, Boulder. Dates: Sat., 7 November 1998 & Sun., 8 November 1998. The Helleboraceae is a segregate family split from the Ranunculaceae and includes genera with follicular fruits, such as *Aconitum, Aquilegia, Delphinium, & Trollius.*

"The Poaceae: how to know the tribes in the grass family". Leader: Dr. David Buckner. Location: Foothills Nature Center, Boulder. Dates: Sat., 5 December 1998 and Sun., 6 Dec. 1998. Focus on identification of tribes within the grass family.

"Chenopodiaceae: the goosefoot family". Leader: Dr. Hugh Wilson. Location: University of Colorado, Boulder. Dates: Sat., 16 January 1999 and Sun., 17 January 1999. Identification of members of the goosefoot family, with an emphasis on plains species.

"Colorado's missing flora". Leader: Susan Spackman. Location: Foothills Nature Center, Boulder. Dates: Sat., 13 February 1999 and Sun., 14 February 1999. Discussion of plant species thought to be extirpated in Colorado by the botanist for the state natural heritage program.

"Polemoniaceae of Colorado". Leader: Dr. J. Mark Porter. Location: University of Colorado, Boulder. Dates: Sat., 6 March 1999 and Sun., 7 March 1999. Recent research on the genus *Gilia* and a segregate taxon, *Alicella.*

"Botanical illustration: field sketching". Leader: Carolyn Crawford. Location: Foothills Nature Center, Boulder. Dates: Sat., 17 April 1999 and Sun., 18 April 1999. Focus on drawing plants and plant parts in the field with dry media presented by a leading Rocky Mountain area artist.

Wyoming's Shirley Mountains

By Walter Fertig

Conventional mountain ranges in Wyoming are characterized by high, snow-capped peaks, large expanses of conifer forests, and an abundance of water. These areas are often well protected in national parks or wilderness areas, or if not, are usually managed with at least some emphasis on recreation and wildlife values. Far less attention is given to the "unconventional" desert mountains of the state, especially the ranges that dot the central basins between the Laramie Range and the Wind Rivers. These bastions of rock and trees are important islands of habitat for montane plants and animals in a sea of semi-desert sagebrush grasslands.

The Shirley Mountains of northern Carbon County, are one such example of an unheralded but biologically significant desert mountain range in central Wyoming. The Shirleys are an uplift of Precambrian granite and Paleozoic sandstone and limestone. Athough they rise only 1800 feet above the surrounding Shirley Basin and Sweetwater Plateau, this elevation gain is sufficient to effect changes in the vegetation of the range. While the adjacent basins are dominated by greasewood, saltbush, and sagebrush communities, the Shirley Mountains contain a mosaic of montane grassland, shrub, aspen, and conifer vegetation types that contain over 300 species of vascular plants. These communities provide important habitat for animals, including elk, mule deer, pronghorn antelope, sage grouse, and raptors.

The most extensive plant communities in the Shirley Mountains are forests of subalpine fir, Engelmann spruce, and lodgepole pine. Common understory species include grouse whortleberry, common juniper, Canada buffaloberry, Oregon-grape, Ross' sedge, interior bluegrass, and Sidebells pyrola. These forests may be interspersed with groves of aspen in areas that are moister or have more fertile soils. Although limited in area, aspen woodlands are especially rich in understory shrubs, grasses, and forbs, such as snowberry, Woods' rose, elk sedge, northern bedstraw, Fendler's meadow-rue, and sweet-cicely.

Woodlands of limber pine become abundant on south facing slopes and rocky exposures of limestone in the Shirleys. These communities typically have a more open understory than other conifer types and may intergrade into drier shrubland vegetation. Metamorphosed rock outcrops within the limber pine zone may support a variety of "ledge" plants capable of exploiting shallow pockets of soil in boulder and cliff crevices. Ferns such as the woolly Fee's lipfern, Brewer's cliff-brake, and bladder fern may grow in these sites. Brandegee's Jacob's- ladder (*Polemonium brandegei*), an aromatic whitish-flowered cousin of the purple alpine sky-pilot, may also occur here. This species has a patchy distribution elsehwere in the southern Rocky Mountains.

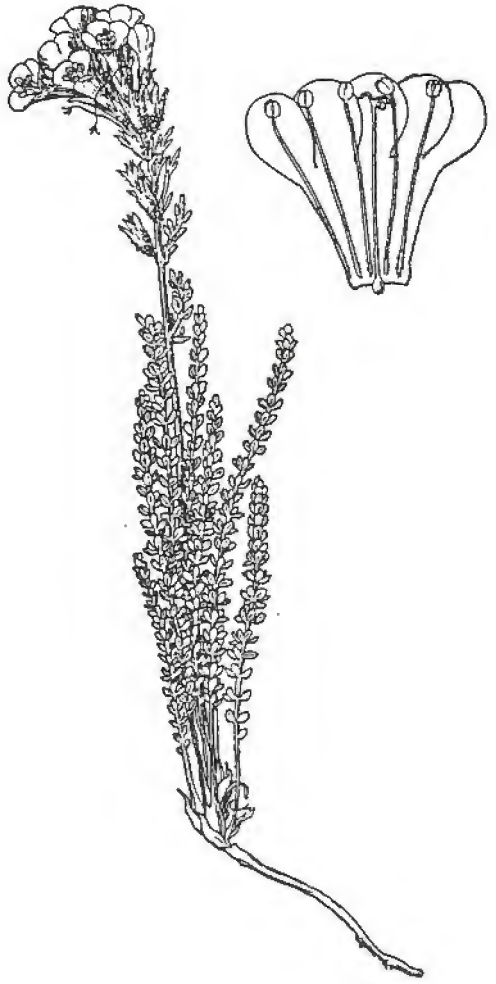
The Shirley Mountains are relatively dry and have few permanent ponds or perennial streams. Wetland vegetation types are thus quite uncommon. Occasional stands of water birch and mountain alder are found on alluvial soils and support a rich association of sedges and forbs. One of the more unusual species in this community is the twisted-stalk (*Streptopus amplexifolius*). This member of the lily family has broad, clasping leaves each with a single, small, creamy flower borne on a thin stalk that is bent at 90 degrees.

Shrub communities are prominent in rocky meadows and slopes on granitic and limestone substrates. Mountain big sagebrush grasslands with Idaho fescue or bluebunch wheatgrass are especially widespread in openings amid limber pine or lodgepole pine. In valley sites, Great Basin wild rye or western wheatgrass may become the most important grass species. Black sagebrush or threetip sagebrush may become locally important on limestone dipslopes with thin soils. Mountain mahogany and chokecherry may also predominate on rockier sites and talus slopes.

Some sites at the northwest end of the mountains have soils that are too dry, shallow, and wind exposed to support extensive shrub or grass cover. These areas are dominated by cushion plants, although threetip sagebrush and Sandberg bluegrass may be locally present. The low stature, clustered gray-hairy leaves, and deep roots of cushion plants allow them to secure and retain enough moisture to survive in this rugged microenvironment. Among the mat species present here are Alpine bladderpod, few-seeded draba, Scribner's fleabane, stemless goldenweed, and spoonleaf milkvetch.

Another cushion plant found sporadically in the Shirley Mountains is the Laramie false sagebrush (*Sphaeromeria simplex*). This species is restricted to calcareous ridges and foothill slopes of the Laramie Range, Shirley Mountains, and other isolated ridges rimming the Shirley Basin and was once a candidate for potential listing as Threatened or Endangered. Surveys in 1995-1996 by Walt Fertig and Bob Dorn indicate that the Shirley Mountain population contains 15,000-18,000 individuals in 7 main subpopulations. Even larger populations have been discovered at other sites in the Laramie Range by Dorn, Ron Hartman, Ernie Nelson, and Amy Roderick since 1997. The Shirely Mountain populations are potentially threatened by road construction and habitat damage from off-road vehicles.

Most of the Shirley Mountains are managed primarily by the Bureau of Land Management, although a number of small, isolated private tracts are also present. Large areas of forest have recently been clearcut on some private inholdings, creating significant erosion problems and degradation of wildlife habitat. The BLM has scaled back its own plans for logging in the area and has taken measures to close two track roads in deference to wildlife habitat concerns and non-motorized recreation. Hopefully these changes will ensure the continued viability of the Shirley Mountain ecosystem for all to enjoy.



Above: Brandegee's-Jacob's ladder by J. F. Davidson (from Univ. California Publ. Botany 23:209-282 (1950).

Botanist's Bookshelf

Illustrated Companion to Gleason and Cronquist's Manual – Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada. By Noel Holmgren, with artistic and editorial assistance of Patricia K. Holmgren, Robin A. Jess, Kathleen M. McCauley, and Laura Vogel. 1998. New York Botanical Garden, Bronx, NY. 937 pp. $125.00 hardcover.

No matter what level of plant identification skills a botanist possesses, he or she is always glad to have a good picture to go along with a key or species description. Although there is no "picture book" that covers the entire Wyoming flora, there are a number of books that cover parts of the state or certain taxonomic groups. The Northwest Flora and Intermountain Flora cover much of the state, but do not cover many of the Great Plains or Eastern Deciduous Forest species found commonly in the eastern third of Wyoming. The new "Illustrated Companion to Gleason and Cronquist's Manual" helps fill this void.

As its title implies, The "Illustrated Companion" is intended to supplement the second edition of Gleason and Cronquist's "Manual of Vascular Plants of Northeastern United States and Adjacent Canada" published by the New York Botanical Garden in 1991. While the older book contains keys and brief descriptions, the new "Companion" consists solely of line drawings. Each drawing is cross-referenced to the appropriate species and page number from the manual, facilitating comparisons between the two books.

Most of the drawings were originally prepared for the three volume "New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada" published in 1952. This series has long been out of print and significant changes in nomenclature have occurred since its publication. The original plates from 1952 have been reproduced in a new format, reorganized following more current taxonomic concepts, and often supplemented with new close-up drawings of diagnostic features.

In addition to its scientific value, the "Illustrated Companion" is a worthy addition to one's library simply for the beauty of the line drawings. The drawings are almost all of exceptionally high quality, being both accurate and beautiful. It is obvious that most of the artists based their work on living material, rather than folded and flattened herbarium specimens (this is especially evident in the wonderful drawings of the Asteraceae). The layout of the book is also very attractive and the large size of the drawings makes the work easy to use. I did, however, find it distracting when the scale of drawings differed greatly between plates (such as *Orobanche uniflora* shown at natural size but towering over its much larger relatives shown at ½ size), and when drawings of the same genus are spread over many pages and intermixed with other genera (as was done with *Danthonia* and *Muhlenbergia*).

Although this book is intended for a northeastern US audience, Wyoming botanists will find it extremely useful in that 1117 of the approximately 4400 illustrated taxa occur in the state (40% of Wyoming's flora). It is a worthwhile companion to other illustrated regional floras. WF

The Botany Songbook

Pistil-Packin Mama'

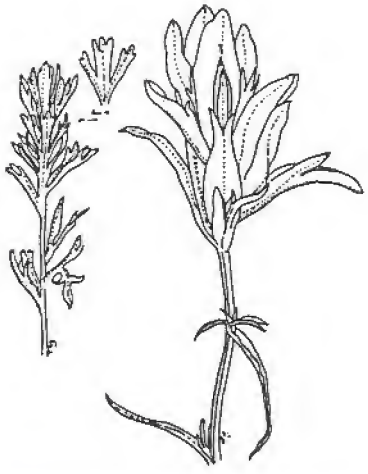
By John "Barney" Baxter, with apologies to "Bing" Crosby

Bing Crosby, one of the pioneers of radio crooning, would be completely forgotten today except for the fact that his recording of White Christmas is played every year from November 1 until December 26 (last year I heard it exactly 1,687 times).

Actually Bing chalked up quite a few hit songs. Once in the dim and distant past he recorded one called "Pistol-packin' Mama" which included the words "Lay that pistol down, babe, lay that pistol down, pistol-packin' mama". I'm always reminded of that song when I think about the amazing yucca moth (*Pronuba yuccasella*).

Dainty little yucca moth, moth of pearly white,
You keep working frantically through the day and night,
Gathering that pollen, babe, and laying lots of eggs,
Work that's very stressful on your slender little legs.

Pack that pistil full, babe,
Pack that pistil full,
Pistil-packin' mama,
Pack that pistil full.



Wyoming Native Plant Society
1604 Grand Ave.
Laramie, WY 82070

The Wyoming Native Plant Society, established in 1981, is a non-profit organization dedicated to encouraging the appreciation and conservation of the native flora and plant communities of Wyoming. The Society promotes education and research on native plants of the state through its newsletter, field trips, and annual student scholarship award. Membership is open to individuals, families, or organizations with an interest in Wyoming's flora. Members receive *Castilleja*, the Society's quarterly newsletter, and may take part in all of the Society's programs and projects, including the annual meeting/field trip held each summer. Dues are $5 annually.

To join the Wyoming Native Plant Society, return the membership form below to:

Wyoming Native Plant Society
1604 Grand Ave.
Laramie, WY 82070

Wyoming Native Plant Society

Name: _____

Address: _____

_____

___ $5.00 Regular Membership

___ $15.00 Scholarship Supporting Member
($10.00 goes to the annual scholarship fund)